

P **Tanacetum parthenium**

Common Name(s)

Feverfew

How Used

M

Chemical Plant Part		Low PPM	High PPM	Std Dev	Reference	Citation
0	(+)-EPOXYARTEMORIN	Leaf	--	--		
2	(-)-CAMPHOR	Plant	--	--		
0	(-)-EPOXYARTEMORIN	Leaf	--	--		
67	1,8-CINEOLE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996.	The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	1-BETA-HYDROXYARBUSCULIN	Leaf	--	--		
0	1-BETA-HYDROXYARBUSCULIN	Plant	--	--		
0	10-EPICANIN	Leaf	--	--		
0	10-EPICANIN	Shoot	--	0.4		

Chemical Plant Part		Low PPM	High Std Dev PPM	Reference Citation
0	2-(HEXA-2',4'-DIYNYLIDENE)-1,6-CIS-DIOXASPIRO-(4,5)-DEC-3-ENE	Shoot	--	1.2
0	2-(HEXA-2',4'-DIYNYLIDENE)-1,6-CIS-DIOXASPIRO-(4,5)-DEC-3-ENE	Root	--	100
0	2-(HEXA-2',4'-DIYNYLIDENE)-1,6-TRANS-DIOXASPIRO-(4,5)-DEC-3-ENE	Shoot	--	0.6
0	2-METHYLPENTA-2,4-DIENE	Fruit Essent. Oil	--	2000
0	3,4-BETA-EPOXY-8-DEOXYCUMAMBRIN-B	Flower	--	485
0	3-BETA-HYDROXYCOSTUNOLIDE	Leaf	--	--
0	3-BETA-HYDROXYCOSTUNOLIDE	Shoot	--	4
0	3-BETA-HYDROXYCOSTUNOLIDE	Plant	--	--
				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp.
1	3-BETA-HYDROXPARTHENOLIDE	Shoot	--	1.2
1	3-BETA-HYDROXPARTHENOLIDE	Leaf	--	--
0	4-BETA-ACETOXY-CHRYSANTHENONE	Shoot	--	1.2
0	5-BETA-HYDROXYREYNOSIN	Plant	--	--
				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp.
0	8-ALPHA-ANGELOYL-OXYESTAFIATIN	Shoot	--	3

Chemical Plant Part		Low PPM	High PPM	Std Dev	Reference	Citation
0	8-ALPHA-HYDROXYESTAFIATIN	Shoot	--	0.4		
0	8-ALPHA-ISOBUTYRYL-OXYESTAFIATIN	Shoot	--	2		
0	8-BETA-HYDROXYREYNOSIN	Leaf	--	--		
0	8-BETA-HYDROXYREYNOSIN	Plant	--	--		
0	8-BETA-REYNOSIN	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite.	1991.
0	9-EPIPECTACHOL	Root	--	143		
36	ALANTOLACTONE	Leaf	--	--		
0	ALPHA-COPAENE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
0	ALPHA-FARNESENE	Fruit Essent. Oil	--	--		
2	ALPHA-HUMULENE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
11	ALPHA-PHELLANDRENE	Essential Oil	--	6000	-0.4769076636125325	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
28	ALPHA-PINENE	Fruit Essent. Oil	--	2000	-0.8225046812392973	
28	ALPHA-PINENE	Shoot	--	15	-0.14595252753743698	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
28	ALPHA-PINENE	Essential Oil	--	10000	-0.47207505752571344	
13	ALPHA-TERPINENE	Shoot	--	45	-0.35510895262369646	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
13	ALPHA-TERPINENE	Plant	--	--		
23	ALPHA-TERPINEOL	Plant	--	--		
23	ALPHA-TERPINEOL	Shoot	--	2.5	-0.2832600201311504	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	ALPHA-THUJENE	Shoot	--	15	-0.2864465102156434	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	ALPHA-THUJENE	Fruit Essent. Oil	--	2000	-0.7397616687333448	
0	ALPHA-THUJENE	Essential Oil	--	6000	-0.36186369670280605	
5	ALUMINUM	Plant	--	6	-0.7451443685154636	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	APIGENIN-7-GLUCOSIDE	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	APIGENIN-7-GLUCURONIDE	Leaf	--	--		
4	ARTECANIN	Leaf	--	--		
4	ARTECANIN	Plant	--	--		
4	ARTECANIN	Shoot	--	0.4		
1	ARTEMORIN	Shoot	--	4		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
112	ASCORBIC-ACID	Plant	--	330	-0.5162152379862993	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	ASH	Plant	--	171000	0.9030718561913528	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
24	BENZALDEHYDE	Shoot	--	--		Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	BENZYL-2-METHYL-BUTYRATE	Fruit Essent. Oil	--	5000		
9	BENZYL-ALCOHOL	Fruit Essent. Oil	--	--		
1	BENZYL-ISOBUTYRATE	Shoot	--	--		Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation	
1	BENZYL-ISOVALERATE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J.	1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
2	BENZYL-PROPIONATE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J.	1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
53	BETA-CAROTENE	Plant	--	14	-0.6513567486971203	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.	
0	BETA-CARYOPHYLLENE	Shoot	--	8	-0.39375252938120847	Hendriks, H., Bos, R., and Woerdenbag, H. J.	1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	BETA-CARYOPHYLLENE	Essential Oil	--	--			
0	BETA-FARNESENE	Essential Oil	--	8000			
0	BETA-FARNESENE	Shoot	--	12	-0.39419791087988254		
0	BETA-FARNESENE	Root	--	40	1.4074654870795833		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
13	BETA-PINENE	Fruit Essent. Oil	--	1000	-0.7715573703107804	
13	BETA-PINENE	Essential Oil	--	--		
13	BETA-PINENE	Shoot	--	4	-0.12082019397820601	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
47	BETA-SITOSTEROL	Fruit Essent. Oil	--	--		
47	BETA-SITOSTEROL	Leaf Essent. Oil	--	16000		
0	BICYCLOGERMACRENE	Root	--	4		
35	BORNEOL	Fruit Essent. Oil	--	1300		
35	BORNEOL	Essential Oil	--	10000	-0.8168042453042687	
35	BORNEOL	Shoot	--	9	-0.3900888401961888	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	BORNEOL-ACETATE	Shoot	--	1.2		
0	BORNEOL-ACETATE	Fruit Essent. Oil	--	7000		
0	BORNEOL-ACETATE	Essential Oil	--	7000	-0.6918807209736767	
0	BORNEOL-ANGELATE	Shoot	--	0.8		
12	BORNYL-ACETATE	Shoot	--	28	-0.36126712188937815	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	BUTYL-BENZENE	Fruit Essent. Oil	--	--		
28	CALCIUM	Plant	--	5810	-0.8321353407836742	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
9	CAMPHENE	Fruit Essent. Oil	--	7000	-0.3352780859890732	
9	CAMPHENE	Essential Oil	--	54000	0.9292841063141826	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
9	CAMPHENENE	Shoot	--	95	-0.1255113105525119	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
9	CAMPHENENE	Leaf Essent. Oil	--	30000	0.1899278105662218	
41	CAMPHOR	Shoot	--	24	-0.15638075587436032	
41	CAMPHOR	Essential Oil	--	442000	1.342251919291669	
41	CAMPHOR	Leaf Essent. Oil	--	201000	0.40766428831174817	
41	CAMPHOR	Fruit Essent. Oil	--	189000		
5	CANIN	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
5	CANIN	Leaf	--	--		
5	CANIN	Shoot	--	0.8		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	CAR-3-ENE	Fruit Essent. Oil	--	--		
0	CARBOHYDRATES	Plant	--	514000	-1.0198824234248682	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
37	CARVACROL	Shoot	--	--		Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
31	CARYOPHYLLENE	Fruit Essent. Oil	--	--		
6	CARYOPHYLLENE-EPOXIDE	Shoot	--	31	1.6391694335729892	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
8	CARYOPHYLLENE-OXIDE	Fruit Essent. Oil	--	4000	-1	
24	CHROMIUM	Plant	--	1.7	-0.7046051474035722	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	CHRYSANTH-TRANS-ENYL-ACETATE	Essential Oil	--	235000		
0	CHRYSANTHEMOLIDE	Leaf	--	--		
0	CHRYSANTHEMOMIN	Leaf	--	--		
0	CHRYSANTHEMUM-PARTHENIUM-EN-YNE-BICLCLO-ETHER	Root	--	3		
0	CHRYSANTHEMUM-SESQUITERPENE-LACTONE	Leaf	--	--		
0	CHRYSANTHENOL	Shoot	--	2	-1	
0	CHRYSANTHENOL-4-ACETATE	Shoot	--	1.2		
0	CHRYSANTHENOL-4-BETA-HYDROXY	Shoot	--	3		
2	CHRYSANTHENYL-ACETATE	Shoot	--	360	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
0	CHRYSANTHENYL-ANGELATE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
0	CHRYSANTHENYL-ISOVALERATE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	CHRYSANTHENYL-PROPIONATE		Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	CHRYSARTEN-A		Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CHRYSARTEN-B		Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CHRYSARTHEMIN-A		Plant	--	--	
0	CHRYSARTHEMIN-B		Plant	--	--	
0	CHRYSOERIOL-7-GLUCURONIDE		Leaf	--	--	
0	CIS-CHRYSANTHENOL-ACETATE		Leaf	--	--	
0	CIS-CHRYSANTHENOL-ACETATE		Shoot	--	1	
0	CIS-CHRYSANTHENOL-ANGELATE		Shoot	--	1	
0	CIS-CHRYSANTHENOL-ISOVALERATE		Shoot	--	0.8	
0	CIS-DENDRANTHEMA-SPIROFURAN-A		Shoot	--	8	
0	CIS-SPIROKETOL-ENOL-ETHER		Root Essent. Oil	--	575000	
2	COBALT		Plant	--	--	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
4	COSMOIIN		Flower	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	COSTIC-ACID-METHYL-ESTER		Shoot	--	0.8	
9	COSTUNOLIDE		Plant	--	--	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
9	COSTUNOLIDE		Shoot	--	6	-1
10	CUMINALDEHYDE		Shoot	--	--	-0.32576507180696485 Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of Tanacetum parthenium (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	CURCUMENE		Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of Tanacetum parthenium (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
3	CYNAROSIDE		Leaf	--	--	
0	D-FRIEDOOLEAN-14-EN-3-OL		Root Essent. Oil	--	53000	

Chemical Plant Part		Low PPM	High PPM	Std Dev	Reference	Citation
0	DEHYDROAUSSUREALACTONE	Fruit Essent. Oil	--	6000		
9	DELTA-CADINENE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
9	DELTA-CADINENE	Essential Oil	--	--		
0	DOCOS-3-ENE	Fruit Essent. Oil	--	60000		
1	ELEUTHEROSIDE-B-1	Shoot	--	--		
0	EO	Plant	200	700	-0.686929830421695	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	EO	Shoot	--	1500	-0.8141965329475307	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	EPOXYARTEMORIN	Leaf	--	--		
0	EPOXYSANTAMARINE	Flower	--	30		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	EUDESMANOLIDES	Leaf	--	--	Leung, A. Y. and Foster, S.	1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
76	EUGENOL	Fruit Essent. Oil	--	1000		
76	EUGENOL	Essential Oil	--	--		
2	FARNESENE	Plant	--	--	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996.	Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
0	FAT	Plant	--	48000	-0.05468700183087534	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	FAT	Seed	--	312000	0.24552423015523567	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	FIBER	Plant	--	143000	-0.5900378792839802	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
11	GAMMA-TERPINENE	Fruit Essent. Oil	--	1000	-1.0164567396291118	
11	GAMMA-TERPINENE	Essential Oil	--	10000	-0.6855735643465313	
11	GAMMA-TERPINENE	Shoot	--	28	-0.3749884139681809	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	GERMACRENE	Plant	--	14900		
0	GERMACRENE-A	Tissue Culture	--	--		
2	GERMACRENE-D	Shoot	--	4	-0.36824936936969666	
2	GERMACRENE-D	Tissue Culture	--	--		
2	GERMACRENE-D	Leaf Essent. Oil	--	31000	-0.5383216002693361	
2	GERMACRENE-D	Essential Oil	--	46000	-1	
0	GERMACRONOLIDES	Plant	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	GUAIANOLIDES	Leaf	--	--	Leung, A. Y. and Foster, S.	1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	HEX-CIS-3-EN-1-OL	Fruit Essent. Oil	--	--		
0	HEX-TRANS-2-EN-1-AL	Fruit Essent. Oil	--	--		
0	HEXAN-1-AL	Fruit Essent. Oil	--	--		
6	IRON	Plant	--	--	Pedersen, M.	1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	ISOAMYL-ISOVALERATE	Fruit Essent. Oil	--	2000		
5	ISOFRAXIDIN	Root	--	122	1	
0	KILOCALORIES	Plant	--	2860	-0.40616652820501614	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	L-BORNEOL	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
60	LIMONENE	Essential Oil	--	5000	-0.7082860385987012	
60	LIMONENE	Shoot	--	--		Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
53	LINALOOL	Essential Oil	--	13000	-0.5248552467846653	
0	LINALYL-PROPIONATE	Shoot	--	--		Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
3	LUTEOLIN-7-GLUCURONIDE	Leaf	--	--		
65	MAGNESIUM	Plant	--	2400	-0.5172740870337147	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	MAGNOLIALIDE	Plant	--	--		

Chemical Plant Part		Low PPM	High PPM	Std Dev	Reference	Citation
14	MANGANESE	Plant	--	8.1	-0.6368507291246737	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	MANGOLIOLIDE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
23	MELATONIN	Leaf	6	3500	1.4142114910611014	
0	MICHEFUSCALIDE	Leaf	--	--		
22	MYRCENE	Fruit Essent. Oil	--	--		
39	NIACIN	Plant	--	285	2.918886504988539	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	OCTANOIC-ACID-ETHYL-ESTER	Fruit Essent. Oil	--	1000		
0	ORTHOCARINE	Plant	--	--		Tramil
16	P-CYMENE	Shoot	--	9	-0.49426810257944204	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
16	P-CYMENE	Fruit Essent. Oil	--	5000	-0.9962725072187498	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
16	P-CYMENE	Essential Oil	--	31000	-0.3774568610491117	
0	P-CYMEENE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
0	P-ETHYLBENZALDEHYDE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
0	P-METHYL-ISO-PROPYLBENZENE	Fruit Essent. Oil	--	--		
0	P-METHYLBENZALDEHYDE	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.	
27	PARTHENOLIDE	Plant	--	--		
27	PARTHENOLIDE	Fruit Essent. Oil	--	284000		
27	PARTHENOLIDE	Flower	--	2424		
27	PARTHENOLIDE	Leaf	130	300000		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
27	PARTHENOLIDE	Leaf Essent. Oil	--	61000		
27	PARTHENOLIDE	Shoot	80	8700		
27	PARTHENOLIDE	Seed	--	15200		
0	PARTHENOLIDES	Plant	--	9000		
0	PARTHOLIDE	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite.	1991.
4	PHOSPHORUS	Plant	--	5010	0.683008160317236	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
1	PINOCARVONE	Fruit Essent. Oil	--	2000		
1	PINOCARVONE	Essential Oil	--	--		
1	PINOCARVONE	Shoot	--	2	-0.6307569440575539	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
14	POTASSIUM	Plant	--	22500	0.04901058337072094	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	PROTEIN	Plant	--	267000	0.7665154169276235	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	PROTEIN	Seed	--	222000	-0.10493212955134139	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PYRETHRIN	Plant	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
0	QUERCETAGETIN-3,3',7-TRIMETHYL-ETHER	Flower	--	--		
0	QUERCETAGETIN-3,3',7-TRIMETHYL-ETHER	Leaf	--	--		
0	QUERCETAGETIN-3,7-DIMETHYL-ETHER	Flower	--	--		
0	QUERCETAGETIN-3,7-DIMETHYL-ETHER	Leaf	--	--		
1	REYNOSIN	Plant	--	--		
1	REYNOSIN	Flower	--	1485		
1	REYNOSIN	Leaf	--	--		
1	REYNOSIN	Shoot	--	0.4		
15	RIBOFLAVIN	Plant	--	2.5	-0.6210248948087893	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
5	SABINENE	Shoot	--	5	-0.29059831881924897	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
5	SABINENE	Essential Oil	--	--		
5	SABINENE	Fruit Essent. Oil	--	1000	-0.7138066475051742	
0	SABINENE-HYDRATE	Shoot	--	1.5		Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
0	SABINENE-HYDRATE	Fruit Essent. Oil	--	--		
5	SABINOL	Fruit Essent. Oil	--	1300		
5	SANTAMARIN	Flower	--	--		
5	SANTAMARIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Chemical Plant Part		Low PPM	High PPM	Std Dev	Reference	Citation
5 SANTAMARIN	Plant	--	--			
3 SANTAMARINE	Flower	--	424			
0 SANTIN	Plant	--	--			
0 SECOTANAPARTHOLIDE	Leaf	--	--			
0 SECOTANAPARTHENOLIDE	Plant	--	--			
0 SECOTANAPARTHOLIDE-A	Leaf	--	--			
0 SECOTANAPARTHOLIDE-A	Shoot	--	0.2			
0 SECOTANAPARTHOLIDE-B	Leaf	--	--			
0 SECOTANAPARTHOLIDE-B	Shoot	--	0.8			
60 SELENIUM	Plant	--	1.7	-0.3516547080519198	Pedersen, M.	1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
4 SILICON	Plant	--	4.6	-0.5184035386753152	Pedersen, M.	1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
1 SODIUM	Plant	--	48	-0.3014209590315537	Pedersen, M.	1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
12 STIGMASTEROL	Fruit Essent. Oil	--	--			

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	TANACETIN	Plant	--	--		Tramil
0	TANACETIN	Shoot	--	15800		
0	TANAPARTHIN	Leaf	--	--		
0	TANAPARTHIN-1ALPHA,4ALPHA-EPOXIDE	Leaf	--	--		
0	TANAPARTHIN-1BETA,4BETA-EPOXIDE	Leaf	--	--		
0	TANAPARTHIN-ALPHA-PEROXIDE	Leaf	--	--		
0	TANAPARTHIN-ALPHA-PEROXIDE	Shoot	--	1.6		
0	TANAPARTHIN-BETA-PEROXIDE	Leaf	--	--		
0	TANAPARTHIN-BETA-PEROXIDE	Shoot	--	4		
0	TANAPARTHIN-PEROXIDE	Leaf	--	--		
0	TANETIN	Flower	--	--		
0	TANETIN	Leaf	--	--		
0	TANNINS	Plant	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
23	TERPINEN-4-OL	Fruit Essent. Oil	--	1000	-0.7441224268433381	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
23	TERPINEN-4-OL	Shoot	--	4	-0.16552235945768073	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
23	TERPINEN-4-OL	Essential Oil	--	28000	-0.3450735894935254	
9	TERPINOLENE	Plant	--	--		
9	TERPINOLENE	Shoot	--	--		Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
31	THIAMIN	Plant	--	4.1	-0.2974931626940486	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
2	THUJOPSENE	Shoot	--	1.5	-0.7071067811865476	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
71	THYMOL	Shoot	--	--	Hendriks, H., Bos, R., and Woerdenbag, H. J.	1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
4	TIN	Plant	--	21	0.00964806037643002	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	TRANS-CHRYSANTHENOL-ACETATE	Fruit Essent. Oil	--	155000		
0	TRANS-CHRYSANTHENOL-ACETATE	Leaf Essent. Oil	--	47000		
0	TRANS-DENDRANTHEMA-SPIROFURAN-A	Shoot	--	0.6		
0	TRANS-DENDRANTHEMA-SPIROFURAN-A	Root	--	2000		
0	TRANS-SPIROKETAL-ENOL-ETHER	Root Essent. Oil	--	51000		
0	TRANS-SPIROKETAL-ENOL-ETHER	Fruit Essent. Oil	--	61000		
0	WATER	Plant	--	895000	0.5311464179022468	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
77	ZINC		Plant	--	--	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.